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The Study of Parental Educational Investment in Left-behind Children in China

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I. Introduction

Left-Behind Children in China are children who remain at home in rural areas while their parents leave for work in urban areas. By definition, children under 16 years old who has at least one parent migrating for work are counted as a left-behind children. In many cases, these children are taken care of by relatives, usually by grandparents or family friends, who remain in rural areas. In 2013, the Women's Federation of China deduced from the Sixth Census in China in 2010 that the number of rural left-behind children was approximately 61.03 million, which was almost the population of Great Britain. And according to UNICEF and China Development Brief, that number grew to 69 million in 2017. In 2013, 79.7% of all rural left-behind children were taken care of by grandparents, 13% by relatives or friends, 7.3% were taken care of by unknown caregivers or were left on their own.

This paper seeks to investigate how being left-behind impacts the educational investment a child receives from parents, controlling for elements like teacher attributes, child characteristics, parents' attitude, provinces and so on. As verified in previous research, educational investment in children increases along with parent migration due to relaxed credit constraint. This paper uses the China Family Panel Survey data from 2012, 2014 and 2016 to measure parents' increased

spending on tuition and educational expenses as compensation for shortened time spent with children. As many perceive, the definition of left-behind children is vague. Parents who have left-behind children could work in an adjacent town, a major city or another country, or if they come home once a week, once a year or once in five years seem to be absent from the discussion around left-behind children. Yet the parents' distance from home and frequency of coming home should significantly impact the child's development outcome. To address this vagueness of definition, this paper does not define left-behind children with a cleanly-cut criterium, but instead locates it in a spectrum of parent-child separation lengths, and attempt to identify the lengths of separation on educational expenses and enrollment, in addition to other key variables like parent education and education preferences, child characteristics, demographic characteristics and so on.

II. Institutional Context

In post-reform China, there has been institutional and structural changes that spurred economic growth, and accompanying that is massive population flow from rural to urban areas. China has a household registration system (hukou system) which was designed to control population migration and labor mobility between rural and urban areas as well as across regions (Cai&Wang, 2005). The system forbade residents with rural hukou to reside in urban areas to spur industrial transformation and agricultural growth. Fortunately, the government has embarked on a hukou system reform since 1997, and according to two 1997 government documents, the "Pilot Scheme for Reform of the Hukou System in Small Towns" and

"Instructions on Improving the Management of Rural Hukou System, rural migrant workers could register as permanent residents with equal access to urban privileges in certain rural towns, These policies were then made official in 2012 with the state document "Notice on Actively Yet Prudently Pushing Forward the Reform of Hukou System Management". The state has also granted many left-behind children the right to attend urban schools so that they can reunite with their rural migrant parents; it has also offered many rural migrants job training (Cui&Cohen, 2015).

There has been vibrant debate concerning whether the hukou system reforms has been beneficial to rural immigrants. For exmaple, gaining hukou in urban area still requires rural immigrants to possess human (non-agricultural skills) or physical capitals(such as cars and properties). These are constraints for most of the rural immigrants due to education inequality or high real estate prices in urban areas (Cindy&Fan, 2008). Due to the restrictive hukou policy and higher prices for schooling, health care, and other services in urban areas, the vast majority of the children of rural-urban labor migrants remain in their home villages for schooling, even when their parents migrate for extended periods (Brown, 2006). And due to accelerated process of urbanization, the local rural economies shrink so extensively that they no longer support a rural labor market. And due to formation of the highly competitive and specialized agricultural market, the excess labor in rural areas is forced to seek work in urban areas to support their households. This movement is reinforced by the rural-urban wage gap of 2.5:1 (Chang et al, 2019). It can be understood that migrating for work in urban cities yields a return that towers over that of staying in the village so much that it becomes a societal norm in the rural area for young parents to migrate to cities for work. However, this does not change the fact that parents

face a trade-off between parent-child separation and educational investment: visiting one's children must result in extra commuting expenses, forgone wages in the current job, and might cause parents to choose jobs with lower wages in closer proximity. Therefore, the institutional background in China provides a setting with empirical evidence of the consequences of parents' migration on left-behind children.

There is an abundant literature investigating how parents migration choices affects rural Left-Behind Children's educational performance and attainment. Scholars identified that the migration choices affected academic performance in two opposite ways: migration for work seems to relax liquidity constraints in investment in children (Du et al.,2005; Edward and Ureta, 2003; Yang, 2008; Lu and Treiman, 2011; Antman, 2012; Ambler et al., 2015; Malik, 2015) parental absence decreases the quality of care (Meyerhoefer and Chen, 2011; Zhao et al., 2014; Zhang et al., 2014). Chang et al. (2019) found that those two impacts vary according to location, socioeconomic status, the child's age, and that families generally recognize these impacts. They, like many others, found that being left behind has a large, significant and negative effect on the cognitive development of toddlers and infants, and on general and social anxiety of primary and secondary school students. They also find more positive effects of parental migration on poorer districts in terms of relaxing liquidity constraints, proving the existence of diminishing marginal returns on remittance in increasing children's academic performance. However, those results define a child as left-behind when parents work in a different location than the children's place of residence, instead of studying the effect of lengths of separation between parents and children. Brown (2006) discovered that parents education increased predicted spending on non required educational goods, and mother's education leads to more time investment in children's

education. Brown also discovered that parents invested more time and expenditure on children with higher cognitive development, which supports the idea that educational investment is based on a child's characteristics. Brown also found evidence that the perceived returns to education and preference for education are higher for educated mothers. Supporting the same conclusion, Gelber and Isen (2011) found that Head Start, a nonprofit educational program in the U.S impacts parent involvement in part because parents perceive their involvement to be complementary with child schooling in the production of child qualities. Alderman et al.(1997) found that in rural Pakistan, there is significant gap in cognitive skills associated with income gaps, through the channels of school availability, distance to school, ability to correctly estimate returns to education.

As the papers listed above demonstrate, there are many elements that affect parents' investment in rural left-behind children. Some economists propose econometric models to estimate how different elements affect such investments. Brown and Park (2001) employ econometric models based on the theory that parents maximize a joint utility function U which is a weighted sum of parent and child payoffs, α, the share of the child's future returns that are transferred from the child to parents through future financial support, and A, which is a parameter that represents the degree to which parents are altruistic towards their children. The study also takes into account the educational level of each parent, as well as a mother's intra-household bargaining power. Returns to education are supposed to be a function of a child's education that is influenced by child, household, and school characteristics. The authors found that there was weak evidence that wealth, measured by expenditures per capita, affects years of schooling independently of whether one is poor and credit constrained, and strong evidence that

wealth affected test scores. De Brauw and Giles (2017) constructed a different model in which households accumulate physical capital from household production using adult and child labor, the wages of adults and children from migrant and off-farm job opportunities, minus consumption and educational expenses. Increased household expenses would increase child skills, therefore increasing the wages and productivity of child labor in household production, therefore increasing accumulation in physical capital in the second period. Households maximize their physical capital accumulation by choosing an optimal level of educational expenditure.

III. Data

This paper uses samples taken in 2010, 2012, 2014 through the China Family Panel Survey(CFPS), published on Peking University Open Research Data website, a bi-annually collected survey that include observations based on face-to-face interviews. CFPS also collected samples in 2011, 2016, and 2018. However, they cannot be devoted to the purpose of this study due to a lack of inclusion of the study's key variables: either tuition or lengths of family separation. The sample of CFPS is drawn from 25 provinces/cities/autonomous regions in China excluding Hong Kong, Macao, Taiwan, Xinjiang, Xizang, Qinghai, Inner Mongolia, Ningxia, and Hainan. The population of these 25 provinces/cities/autonomous regions in China (excluding Hong Kong, Macao, and Taiwan) includes 95% of the Chinese total population. Thus, CPFS can be regarded as a nationally representative sample. The original target sample size was 16,000 households. Half of the sample (8,000) was generated by oversampling with five independent sampling frames (called large provinces) of Shanghai, Liaoning, Henan, Gansu, and Guangdong.

Each of the subsamples had 1,600 households. The other 8,000 households were obtained from an independent sampling frame composed of 20 provinces (called ―small provinces) (Xie&Lu, 2015). The large provinces were representative of the regional level, which could contribute to provincial population inferences and cross-region comparisons.

Unlike previous datasets, which collected information separately on rural or urban residents, this dataset include residents of all hukou type. At the household and individual level, CFPS identified the hukou type and whether the household engaged in non-agricultural work or not. It is possible to decide whether the community is rural or urban using such information rather than relying on administrative divisions. This dataset has the advantage of capturing parents with rural hukou, whose children stay in rural areas. These children might not be able to attend urban schools under some administrative limitations when their parents migrate. This paper found that the hukou type of a child significantly affect their tuition, with all sets of controls.

From the CFPS sample in 2016, from 8427 children sampled, 6693 had agricultural hukou, which was 79.4% of the whole sample. In 2014, 6659 out of 8616 children sample had agricultural hukou, 77.3% of the whole sample. In 2012, the ratio is 6589 out of 8620, approximately 77.8% of the sample. In 2010, the ratio is 6873 out of 8990, approximately 76.5% of a sample that are meant to be based on randomly selected Chinese inhabitants. According to official figures, 55.27% of the population lives in urban areas (World Bank, 2018). This signifies that compared to the hukou type ratios of the general population, children are drastically more prone to have an agricultural hukou, which makes the study of rural left-behind children in China a very important subject matter.

The dataset divides the seven sections of the survey into six datasets: village or city infrastructure, status of family members and size of households, adult, child, family face-to-face interview, common section and family phone interviews. In my study, I merged the datasets of children's face-to-face interviews from 2010, 2012, and 2014 using observation numbers. The combined sample size is 26226 observations. The child section contains two sub-sections: adult proxy answers and answers from children from 10-15. This section contains information on the subject of child characteristics, attitudes, behavior, and expenses. The common section inquires about child characteristics such as the internet use, college and masters major, major ranking, language used in daily communication, class size, whether interviewee was enrolled in school, time or money spent on extracurricular skill-based tutoring such as musical instruments, computer skills, speed calculation, etc. Variables in the common section appear in and so are "common" to all six datasets.

The key equation regresses two measures of educational investment: tuition and school enrollment, on the length of parent-child separation reported by the child. For the parent-child separation measure, I used answers to the survey question: "How long did you live with your dad/mom in the last 12 months". From the various responses, I created 7 dummy variables: for 12 months, 11 months, 8 to 10 months, 5 to 7 months, 2 to 4 months, 1 month and 0 month, each of the seven categories in the questionnaire. The answers for fathers and mothers are separately recorded, therefore I treat them as two different sets of variables, and regress the two educational investment variables on each of them for every set of control variables. For the 2010 sample, the question was phrased as a short question, with no suggested options, instead of multiple choice. The length of separation was recorded in weeks instead of months, I converted the number of

weeks into the closest number of months, and when it is in the middle of two months and could fall into either of the categories, for example, 6 weeks, which could be 1 month or 2 to 4 months, I round the numbers up to 2 to 4 months, to avoid an overestimation of the target coefficient; when the period of separation is slightly less than counted, the same tuition is matched sometimes with exaggerated period of separation, which would reflect lower parent investment for the same lengths of family separation, which would in turn cast a downward bias on the coefficient. In this sample, 38.4% of children live with their mother for all 12 months of a year, compared to 32.9% who live with their father for all 12 months of a year. 4.3% of the children live with their father for 0 month in the last year, compared to 3.9% who live with their mother for 0 month. This agrees with the common knowledge that fathers are more likely to migrate for work. For this study, I omit lwmom_12/lwdad_12, the group of children who live with their mother or father for all 12 months of the year, from the regressions as a standard of comparison.

The dependent variables include tuition and enrollment. Tuition is the amount of tuition and miscellaneous fees, measured in yuan, that are imposed on parents, which includes costs of baby-seeing after school when parents are not available, textbook and study supply costs, nutrition supplements like milk or fruits for which parents pay. This variable are the answers to the question “how much did you pay for tuition in the last year?”. Tuition should be heavily influenced by child’s age, as tuition in different phase of schooling (high school or primary school) imposes a different amount of tuition requirements, and tuition generally increases as a child grows up. For this sample, the mean tuition 1669.3 yuan, with the maximum being 40,000 yuan and the minimum being 0 yuan. 14,268 child, which is more than half of the sample, pay 0 yuan for their children, producing an extremely rightward-skewed sample.

Enrollment is a quantitative variable which is 1 if the interviewee was enrolled in school at the time of the interview, and 0 if not. This variable does not distinguish between part-time and full-time students. However, a child who accepts tutoring, homeschooling, and extracurricular classes was not treated as "enrolled". In the sample, only 8,503 children are enrolled in a school, which is 33.5% of the recorded observations. Therefore the parameters for enrollment might be insignificant due to a overly large standard error, and are listed only for reference.

IV. Empirical Strategies

It is reasonable to assume, based on relevant literature, that parents' educational expenditure is correlated with parents' attitude towards child and education, teacher attributes, child characteristics, and so on. All regressions in this paper include province controls and year controls. P represents province control variables, which includes 28 provinces and special districts that was sampled in the study. And year dummy variables (one for each of 2010, 2012 and 2014) coarsely control for general trends in local off-farm and migrant labor markets, and macroeconomic conditions.

$$I_{ith}=\beta_1*lwdad\_n_{ith}/lwmom\_n_{ith}+E_{it.} \qquad (1)$$

I_{ith} represent educational expenditure on child i in time period t in household h, proxied by tuition and enrollment, the only available measures of educational investment in the dataset. The independent variables lwdad_n and lwmom_n represents the range of months for which children reported to have stayed with their parents in the last year.

The second equation controls for child characteristics:

$$I_{ith}=\beta_1*lwdad\_n_{ith}/lwmom\_n_{ith}+\beta_3*N_{it}+E_{it.} \quad (2)$$

N_{it} includes the child's household registration type, measured by *hktype*, which would be either agricultural or non-agricultural. It also includes questions about the child's work ethics and studying capability to the adult proxy: whether they are perceived to be good at math or good and Chinese, the two most important subjects in elementary and middle school; whether they check their own homework, whether they are hardworking, whether they play after homework, whether have good concentration, whether they are disciplined, and whether they have good followthrough (Leight&Liu, 2018). According to Leight and Liu, non-cognitive characteristics are more easily observable by the parents rather than cognitive characteristics, but less so by survey-conductors or experiment administer, which they found to influence educational investment significantly.

Child characteristics includes innate characteristics like age, gender, years of education already received, whether they hold a position in their class, whether the child is tidy, the age, measured in months, in which they become successfully potty-trained, walk and speak, and how many years of education do they want for themselves. Holding a position in school shows the child has higher sense of responsibility and higher academic standard than their peers, and it also shows that student has higher trust from teachers, therefore less likely to drop out of school. The number of years of education the child wants reflects internal motivation, which might motivate the parents to increase investment. N_{it} also includes absenteeism, which shows whether the child was ever absent with or without applying for absence. Since the various reasons behind

absenteeism might suggest very different factors that would affect parent investment, I constructed dummy variables for each reason: *absent_ sick*, for children who were absent because of being sick, *absent_fambiz*, for children who were absent to look after family business in parents' place, *absent_sibling*, for children who were absent to look after siblings, *absent_homework* for children who were absent out of guilt for not completing the homework, *absent_hatescl* for children who report to be absent frequently out of a distaste for school, and *absent_play*, for children who preferred playing to school. While being absent to look after family business and siblings might reflect parents' disregard for child education and heavier extracurricular burden on child, being absent for distaste of school or wanting to play might reflect a lack of work ethics, a complementary good to educational investment, thus decreasing returns to educational investment.

The third equation includes parent attitude controls:

$$I_{ith}=\beta_1*\text{lwdad\_n}_{ith}/\text{lwmom\_n}_{ith} + \beta_2*N_{it} + \beta_3*\text{eldhelp} + \beta_4*\text{prolif} + \beta_5*\text{malif} + \beta_6*\text{echelp} + \beta_7*\text{jyss} + +\beta_8*\text{educ\_preference} + E_{it.} \quad (3)$$

The variable educ_preference is a variable that represents how many years of education parents intend their children to obtain in their life. The highest is Ph.D, which corresponds to 21 years of education, as opposed to none, which corresponds to 0 years of education.

The rest is how strongly parents agree or disagree with the statements: "You had children to economically help your household", "You had children to proliferate your bloodline", "You had children to support you when you are old", "You had children so that you can watch them grow

up". It is plausible that parents who had children out of economic concerns, or cultural obligations might be less inclined to invest in children's education, and might have a higher present discount rate when they do. Parent attitude control variables are henceforth referred to as M_{it}.

The forth equation includes teacher attributes variables

$$I_{ith}=\beta_1*lwdad\_n_{ith}/lwmom\_n_{ith}+\beta_2*N_{it}+\beta_3*M_{it}+\beta_4*T_{it}+E_{it.} \quad (4)$$

Since the most important three subjects in Chinese schools are Chinese, Math and English, T includes goodchiteacher, goodmathteacher and goodengteacher. Those three variables are recorded answers by parent of the observed child to the question "Do you think your child has a good Chinese/Math/English teacher?". Therefore the parameter β_4 should signify how much more/less tuition are paid for the observed child in the last year if the parents report that the child has a good teacher in any of the three core classes.

Equation (5) takes into consideration the possibility that periods of separation could affect enrollment, through which affects tuition. De Brauw and Giles (2017) found that a decline in the cost of participating in migrant employment leads to a decrease in he probability that children will attend high school in rural China, due to a rise of employment in both migrant and local off-farm activities. Some parents might be able to afford tuition, and therefore allow their children to enroll, or they might take children with them to work in the city, through which parent migration decreases school enrollment, and thus decreases tuition. Therefore equation (5) includes enrollment and lengths of separation interaction terms to control for the changes of tuition resulted from changes in enrollment.

$$I_{ith}=\beta_1*lwdad\_n_{ith}/lwmom\_n_{ith}+\beta_2*N_{it}+\beta_3*M_{it}+\beta_4*noenlwdad\_n/noenlwmom\_n+E_{it.} \quad (5)$$

noenlwdad_n and *noenlwmom_n* are the interaction variables between separation and the variable *noenroll*, which equals 1 if the child is not enrolled in a school, and equals 0 if otherwise. It should be interpreted as how much less or more tuition parents pay for tuition through an decreased or increased enrollment rate. In addition to the fact that length of separation might affect enrollment through affect parents income, the length of separation could also affect enrollment through affecting child's mental health and motivation to attend school. It is well documented that having absent parents will negatively affect a child's cognitive and non-cognitive abilities, therefore decreasing educational attainment (Cunha and Heckman, 2007). I_{ith}, which represents educational investment, is only proxied by tuition in equation (5), since *noenroll* is the variable that measures enrollment.

Equation (6) includes province and child's years of education interaction variable, as well as province and length of separation variable. Province and child's years of education interaction terms exist to control for the fact that in different provinces, advancing in education entail different speeds of increases in tuition. In some provinces, higher education are way more expensive than K-12 education, and in some provinces that might not be the case. Province and length of separation variable exist to control for different proportions of migrant labor in different provinces. In some provinces, migrant labor wage is far higher than local wage, and in some provinces that might not be the case. The effects listed above are not necessarily captured by the province control variables alone.

$$I_{ith}=\beta_1*lwdad\_n_{ith}/lwmom\_n_{ith}+\beta_2*N_{it}+\beta_3*M_{it}+\beta_4*province\_dummy*eduy + \beta_5*province\_dummy*lwmom\_n/lwdad\_n + E_{it.} \quad (6)$$

Equation (2) includes child's years of education, considering that tuition becomes more expensive as students progress towards higher levels of education. Since child's years of education is far from perfectly correlated with age (one year increase in age increases the possibility of enrollment by 0.3, statistically significant), *child_eduy* more precisely measures the child's grade level than age.

V. Results

In the key equation, it is found that length of cohabitation significant affects both the amount of tuition, and the possibility that a child is enrolled in school, both for mothers and fathers. The significance is especially witnessed in children who live with their mother/father for 2 to 4 months, or 5 to 7 months in the past year. The significance is not uniformly observed in all length of cohabitation, for either mother or fathers. It is noticeable that for children who lived with their mother/father for 0 month, 1 month or 11 month in the past year, few of the parameters are significant. The significant grows as the length of cohabitation converges to 2 to 4 months or 5 to 7 months. It means that tuition for children who live with their parents for those amount of time in the past year are significantly higher than children who live with their parents for all 12 months last year. But tuition for children who lived with their parents for 0 month, 1 month, 8 to

10 months, or 11 months do not significantly differ from that of children who live with their parents the entire year. The scale of the parameter for length of cohabitation changes slightly as the sets of control variables changes, however, they waver around 200 to 300 yuan, which was considered a large sum of money in 2010 to 2014 rural areas. A ball-point pen was 0.7 yuan, and a bottle of mineral water was 1.5 yuan.

It can also be observed that tuition for children who lived with their mothers for 2 to 4 months or 5 to 7 months for the past year are always higher than that of children who lived with their fathers for 2 to 4 months or 5 to 7 months for the past year, with all sets of control variables. In a traditional rural Chinese family, fathers are more prone to be the breadwinners, therefore this gender discrepancy can be interpreted as that the mother's labor inputs more heavily influence household consumptions that are not essential to survival (not food, shelters, medical expenses or utilities). Therefore compared to children who have fathers migrated for work for a prolonged period, children who have their mothers migrated for work tend to receive larger educational expenses. The difference between lwmom_24 and lwdad_24 is 60.1 yuan in equation (1), 45.7 yuan in equation (2), 58.9 yuan in equation (3), 55.4 yuan in equation (4), 49.9 yuan in equation (5), 93.9 yuan in equation (6), which is 2.7% to 5.6% of the sample's average tuition. The difference between lwmom_57 and lwdad_57 is 61.27 yuan in equation (1), 68.84 yuan in equation (2), 59.55 yuan in equation (3), 59.92 yuan in equation (4), 130 yuan in equation (5), 72.58 yuan in equation (6), which is 3.5% to 7.8% of the sample's average tuition.

It can also be observed, that the scale of the parameters of lengths of cohabitation are significantly larger in equation (5), than in all other sets of control variables. It shows that tuition of children who live with their mothers for 2 to 4 months is 828.7 yuan more than that of

children who live with their mother for all 12 months of the year, and tuition of children who live with their fathers for 2 to 4 months is 778.8 yuan more than that of children who live with their fathers for all 12 months of the year, as opposed to around 200 to 300 yuan. This agrees with our hypothesis that lengths of cohabitation affects tuition by affecting school enrollment. After isolating the variations caused by this influence, our key parameters, lwmom_24/lwdad_24 and lwmom_57/lwdad_57 have increased dramatically, which means children who are enrolled in school anyways have their tuition increased for 778.8 yuan or 828.7 yuan if their father or mother live with them for 2 to 4 months the past year, and 556.7 yuan or 686.7 yuan if their father or mother live with them for 5 to 7 months the past year.

It can be seen that all sets of interaction terms in equation (5) are statistically significant at 1% level but one. It means that parents who live with their children for less than 12 months indeed pay less tuition if their children are not enrolled in school. Since noenroll is a variable that is 1 if the child is not enrolled in school, and 0 otherwise, the negative signs in those parameters agrees with the intuition that parents whose children are not enrolled pay less tuition.

It can be seen in equation (2), Table I that children who are reported by their adult proxy to be hardworking or check homework after completion receive more in tuition. Children who are hardworking receive 32.15 or 32.54 yuan more in tuition, and children who check their homework after completion receive 42.01 or 41.90 yuan more in tuition. Each year increased in child's self-reported preference for their own education (answer to the question "How many years of education do you want for yourself") increase their tuition in the past year by 12.02 or 11.92 yuan. This agrees with the hypothesis that children who have better work ethics, or are more motivated students, receive higher tuitions. Interestingly, the coefficients for whether

parents report children to be good at Chinese or Math insignificantly affect tuition, which means that the child's own attitude towards studying might be more important in deciding educational spending than the child's academic performance, which contradicts previous findings. This insignificance might also be due to the fact that parents have poor evaluations of their children's performances in school.

Similarly, in equation (2), it can be found that one year increase in child's age increases tuition by 21.44 or 21.37 yuan. One year increase in the child's years of education, however, increases tuition by 96.46, or 96.52 yuan. The reason that the scale of those two sets of parameters differ by so much might be that the child's age is very poorly correlated with years of education. One year increase in the child's age only result in 50.8% increase in years of education, significant at 1% level. This might be due to the fact that many children in the sample are not in school age. It might also be due to the fact that many children are not enrolled in school, as discussed in the data section. This also agrees with the hypothesis that education becomes more costly as children progress towards higher grades.

As observed in Table I, children who take sick leaves receive 493.6 or 495.6 less tuition than children who don't, significant at 1% level. This echoes our conclusion that children with higher non-cognitive abilities (better work ethics, more motivated, more healthy) receive higher educational spendings. Children who are absent specifically because they hate school 776.3 or 785.6 yuan less in tuition, which is a significant amount of money, controlling for lengths of cohabitation. And children who are absent in general receive around 5 yuan less in tuition, which is statistically significant and economically insignificant.

It can also be remarked that parents who had children to help the household economically (echelp is 1) pay 56.18 or 55.79 less in tuition, which concurs with the intuition that parents who had children for economic reasons are more inclined to have their children employed instead of enrolled in school. Parents who had children for the joy of having children (jyss is 1) pay 12.09 or 12.04 less in tuition, probably due to the fact that they harbor less ambitions for their children.

Parents who report that children have better Math or English teachers pay more in tuition. Parents who report that their children have good math teacher pay 33.27 or 32.87 yuan more in tuition than parents who don't, and parents who report that their children have good English teacher pay 60.77 or 60.88 yuan more than parents who don't. This is congruent to the fact that returns to education is higher if children have good teachers, inspiring more educational spendings. All the control variables display no systematic gender discrepancies.

As can be seen in Table II, the parameters for lengths of cohabitation in affecting enrollment are all economically insignificant, and the statistical significance displays no systematic patterns. This might be due to the lack of extreme skew in distribution and large standard errors in the sample. Therefore the table is listed only for reference.

VI. Conclusion

This paper has found the length of family separation to positively affect parents' education investment in children, testifying to the fact that leaving children for work yields positive economic benefit, which parents in turn spends on children's education. When regressing tuition and enrollment on different segments of parent-child separation lengths, the coefficient of lwdad_24 and lwmom_24 turn out to be positive and statistically significant with all sets of

control variables. It has also found that child's work ethics, health, and penchant for studying determine parents' educational investment, as well as parents' attitude towards education and towards the child. The province variables are often statistically significant, however, they do not alter the scale or the statistical significance of key variables. Interaction terms between child's years of education and province, length of separation and province, enrollment and length of separation are all intermittently significant, and the teacher's attribute significantly affect tuition, negatively for Chinese teachers but positively for math or English teachers.

VII. References

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VIII. Appendices

Table I Tuition

Tuition	Equation 1 Father	Equation 1 Mother	Equation 2 Father	Equation 2 Mother	Equation 3 Father	Equation 3 Mother	Equation 4 Father	Equation 4 Mother	Equation 5 Father	Equation 5 Mother	Equation 6 Father	Equation 6 Mother
0 month	68.01	99.58*	13.95	28.17	61.93	93.20*	70.8	89.84*	276.0***	321.5***	8.926	107.7**
	52.68	54.37	52.94	54.64	52.67	54.35	52.6	54.27	87.44	88.15	52.53	52.93
1 month	-12.75	12.36	28.57	38.02	-9.946	15.78	13.88	31.21	333.9***	356.3***	22.2	29.08
	44.02	48.04	44.6	48.53	43.99	48.02	44.11	48.15	77.81	86.43	44.31	46.14
2 to 4 months	292.5***	352.6***	202.4***	248.1***	294.7***	353.6***	273.1***	328.5***	778.8***	828.7***	125.6	219.5**
	35.72	38.61	36.49	39.29	35.69	38.58	35.75	38.66	52.64	56.33	95.22	96.78
5 to 7 months	82.83*	144.1***	82.96*	151.8***	89.35*	148.9***	88.88*	148.8***	556.7***	686.7***	69.82	142.4***
	49.12	53.24	49.26	53.24	49.1	53.21	48.96	53.01	81.25	86.88	48.89	51.5
8 to 10 months	48.61	120.0*	98.50*	178.5***	56.35	128.3**	73.05	139.5**	393.7***	616.1***	89.76	135.0**
	57.31	62.79	57.61	63.18	57.29	62.77	57.32	62.86	104.2	113	57.12	61.26
11 months	46.31	40.02	145	118.4	52.77	43.21	70.78	56.47	337.2**	445.4***	163.3*	43
	77.62	80.08	92.11	96.13	77.57	80.02	77.34	79.55	143.6	151.8	91.24	79.22
hktype			-30.26	-34.07								
			33.05	32.99								
hardworking			32.15**	32.54**								
			14.46	14.45								
checkhw			42.01***	41.90***								
			14.33	14.33								
self_preference			12.02**	11.92**								
			4.989	4.987								
age			21.44**	21.37**								
			9.275	9.273								
gender			-22.74	-22.88								
			27.8	27.78								
child_eduy			96.46***	95.52***								
			8.34	8.341								
absent			-5.136***	-5.130***								
			1.321	1.32								
absent_sick			-493.6***	-495.6***								
			117.5	117.5								
absent_homework			2,655***	2,668***								
			936.8	936.4								
absent_hateschl			-776.3*	-785.6*								
			454.8	454.6								
educ_preference					-0.468	-0.549						
					1.219	1.219						
eldhelp					19.66	19.38						
					25.63	25.62						
prolif					31.65	31.49						
					25.11	25.1						
malif					-3.445*	-3.460*						
					2.051	2.051						
echelp					-56.18***	-55.79***						
					20.16	20.15						
jyss					-12.09***	-12.04***						
					2.4	2.399						
goodchiteacher							-30.58*	-31.04*				
							17.25	17.25				
goodmathteacher							33.27*	32.87*				
							17.33	17.32				
goodengteacher							60.77***	60.88***				
							12.77	12.77				
noenlwdad_0									-313.8***	-347.5***		
									104.7	107.5		
noenlwdad_1									-481.4***	-479.5***		
									88.87	99.29		
noenlwdad_24									-788.6***	-807.2***		
									62.94	69.69		
noenlwdad_57									-707.4***	-834.2***		
									96.74	105.3		
noenlwdad_810									-479.0***	-701.9***		
									120.7	132.5		
noenlwdad_11									-409.0**	-560.5***		
									168.6	176.8		
*** p<0.01, ** p<0.05, * p<0.1												

Table II Noenroll

Noenroll	Equation 1	Equation 1	Equation 2	Equation 2	Equation 3	Equation 3	Equation 4	Equation 4	Equation 6	Equation 6
	Father	Mother	Father	Mother	Father	Mother	Father	Mother	Father	Mother
0 month	-0.00348	-0.0337**	-0.00463**	-0.00722***	0.000737	-0.0294*	-0.00123	-0.00496	-0.00472**	-0.0230**
	-0.0151	-0.0156	-0.00233	-0.00241	-0.0151	-0.0155	-0.00472	-0.00487	-0.00233	-0.0115
1 month	0.0316**	0.0162	0.000283	-0.00273	0.0515***	0.0393***	-0.00021	-0.00239	0.000299	0.00848
	-0.0125	-0.0135	-0.00196	-0.00214	-0.0126	-0.0137	-0.00396	-0.00432	-0.00197	-0.00982
2 to 4 months	-0.0550***	-0.0914***	0.00350**	0.00298*	-0.0510***	-0.0870***	-0.00104	-0.0039	0.00663	-0.0263
	-0.0102	-0.011	-0.00161	-0.00173	-0.0102	-0.011	-0.00321	-0.00347	-0.00423	-0.0206
5 to 7 months	-0.00495	-0.0332**	-0.000137	0.00012	-9.21E-05	-0.0300**	-0.000191	0.00193	-0.000116	-0.00349
	-0.014	-0.0152	-0.00217	-0.00235	-0.014	-0.0152	-0.00439	-0.00476	-0.00217	-0.0111
8 to 10 months	0.0544***	0.0320*	-0.000909	-0.00234	0.0471***	0.0223	-0.00148	-0.00757	-0.000725	0.00801
	-0.0165	-0.018	-0.00254	-0.00278	-0.0164	-0.0179	-0.00514	-0.00564	-0.00254	-0.0132
11 months	0.0601***	0.0655***	-0.00494	-0.00494	0.0482**	0.0563**	0.00112	0.00441	-0.00518	0.0637***
	-0.0225	-0.0232	-0.00406	-0.00423	-0.0222	-0.0229	-0.00694	-0.00714	-0.00405	-0.0173
hktype			-0.00954***	-0.00927***						
			-0.00146	-0.00145						
hardworking			0.00529***	0.00527***						
			-0.000637	-0.000637						
playafterhw			0.00156**	0.00155**						
			-0.000711	-0.000711						
concentration			-0.00145**	-0.00144**						
			-0.000734	-0.000734						
speakage			0.000346***	0.000346***						
			-9.85E-05	-9.85E-05						
countage			-0.000139*	-0.000138*						
			-8.13E-05	-8.13E-05						
goodatchinese			0.00415***	0.00418***						
			-0.000914	-0.000914						
self_preference			-0.0235***	-0.0235***						
			-0.00022	-0.00022						
position_dummy			-0.000412**	-0.000411***						
			-8.96E-05	-8.96E-05						
age			-0.0156***	-0.0156***						
			-0.000408	-0.000408						
gender			0.00422***	0.00422***						
			-0.00122	-0.00122						
agegen			-0.000807**	-0.000809***						
			-0.000139	-0.000139						
child_eduy			0.00212***	0.00210***						
			-0.000367	-0.000367						
absent			-0.00455***	-0.00455***						
			-5.82E-05	-5.82E-05						
absent_sick			-0.370***	-0.370***						
			-0.00518	-0.00517						
absent_fambiz			-0.406***	-0.406***						
			-0.0358	-0.0358						
absent_sibling			-0.429***	-0.429***						
			-0.0412	-0.0412						
absent_homework			-0.377***	-0.377***						
			-0.0413	-0.0412						
absent_hateschl			-0.442***	-0.442***						
			-0.02	-0.02						
absent_play			-0.389***	-0.389***						
			-0.0188	-0.0188						
educ_preference					0.00527***	0.00530***				
					-0.000349	-0.000348				
eldhelp					-0.00705	-0.007				
					-0.00733	-0.00732				
prolif					-0.00998	-0.00979				
					-0.00718	-0.00717				
malif					-0.000442	-0.000423				
					-0.000587	-0.000586				
echelp					0.0129**	0.0127**				
					-0.00576	-0.00576				
jyss					0.0174***	0.0174***				
					-0.000686	-0.000686				
goodchiteacher							-0.100***	-0.100***		
							-0.00155	-0.00155		
goodmathteacher							-0.0933***	-0.0932***		
							-0.00155	-0.00155		
goodengteacher							-0.0336***	-0.0336***		
							-0.00115	-0.00115		
*** p<0.01, ** p<0.05, * p<0.1										

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